LAYMAN'S REPORT

LIFE VÍA DE LA PLATA
LIFE19 CCA/EN/001188

Co-funded by the European Union

Coordinating beneficiary:

Associated beneficiaries:

www.lifeviadelaplata.com

LIFE19 CCA/ES/001188 "Climate Change Adaptation in the Heritage City of Salamanca (Spain): Ecosystem Services, Green Infrastructure and big data".

Name: "Climate Change Adaptation in the Heritage City of Salamanca (Spain): Green Infrastructure, Ecosystem Services and big data".

Acronym: LIFE Vía de la Plata

Reference: LIFE19 CCA/ES/001188

Coordinating beneficiary: EPE Patronato Municipal de Vivienda y Urbanismo (PMVU) del Excmo. Ayuntamiento de Salamanca.

Associated beneficiaries: Excmo. Salamanca City Council, UNESCO Chair on Sustainable Development and Environmental Education of the University of the Basque Country (UPV/EHU) and University of Salamanca (USAL).

Total budget: 2.861.101 €, co-financing 54,77%.

Project duration: September 2020 to december 2023.

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www.lifeviadelaplata.com

versión en español de este documento aquí.

All the documents, useful models, dissemination material, guides, projects, brochures, signs, videos, workshops and congress material generated can be downloaded at your **website.**

Cofinanciado por la Unión Europea

Coordinating beneficiary:

Associated beneficiaries:

Ayuntamiento de Salamanca

Universidad del País Vasco

Euskal Herriko Unibertsitatea

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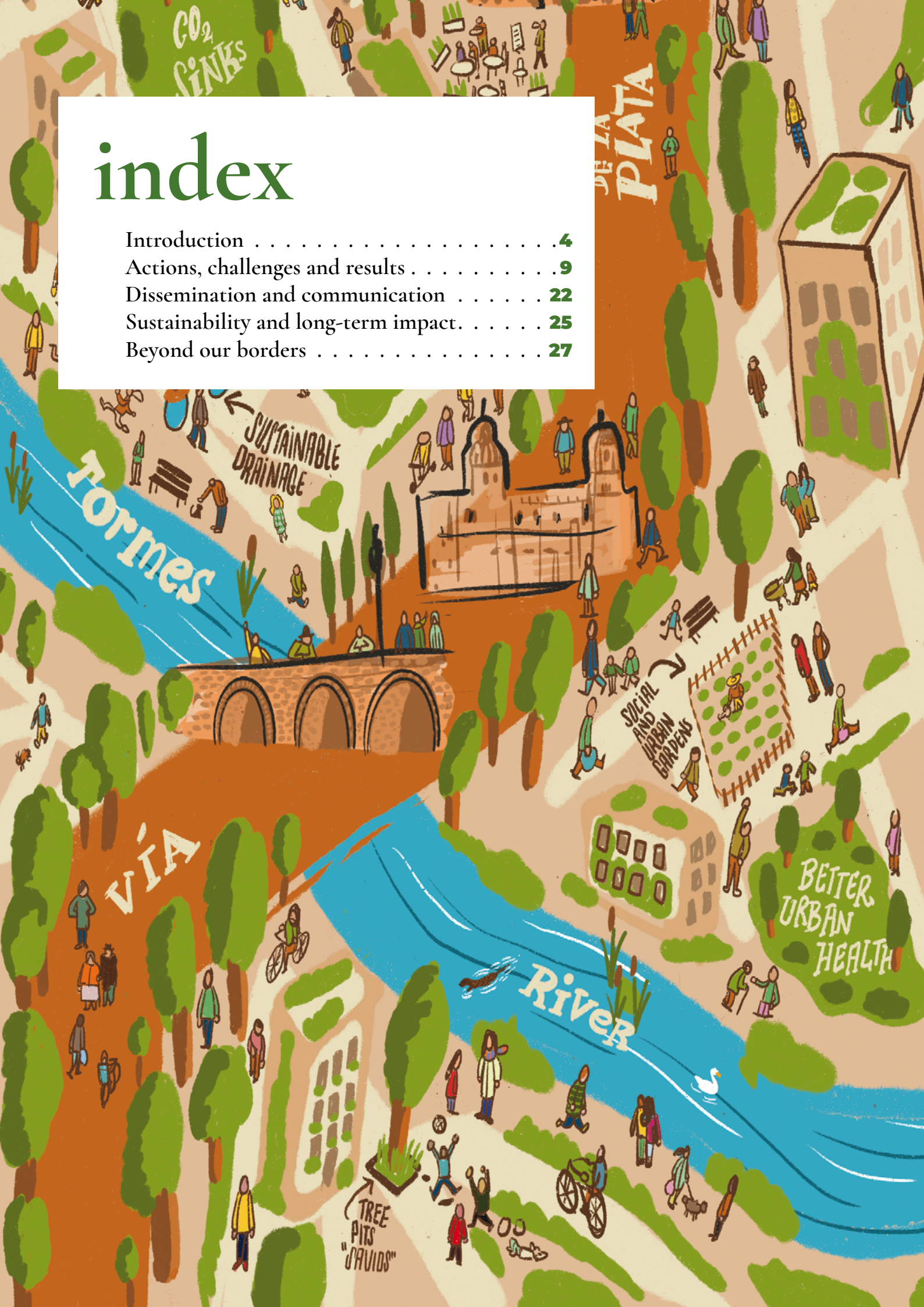


Introduction

The unique project

LIFE Vía de la Plata (LIFE19 CCA/ES/001188) is a pilot project chosen by the European Commission in its 2019 call of the climate change programme (**LIFE Climate Change Adaptation**).

The main objective of the LIFE Vía de la Plata project is to create a model of adaptation to climate change for Salamanca, world heritage city, through the construction of green infrastructure and the improvement of ecosystem services.

> "CREATION OF A MODEL OF ADAPTATION TO CLIMATE CHANGE FOR SALAMANCA"

THE CONSORTIUM

EPE Patronato Municipal de Vivienda y Urbanismo del Ayuntamiento de Salamanca (leader).

Salamanca City Council.

UNESCO Chair on Sustainable Development and Environmental Education of the University of the Basque Country (UPV/EHU).

University of Salamanca (USAL).

TOTAL BUDGET

2.861.101 €

EC CO-FINANCING

1.424.390€

IMPLEMENTATION PERIOD

SEPTEMBER 2020 >>
DECEMBER 2023

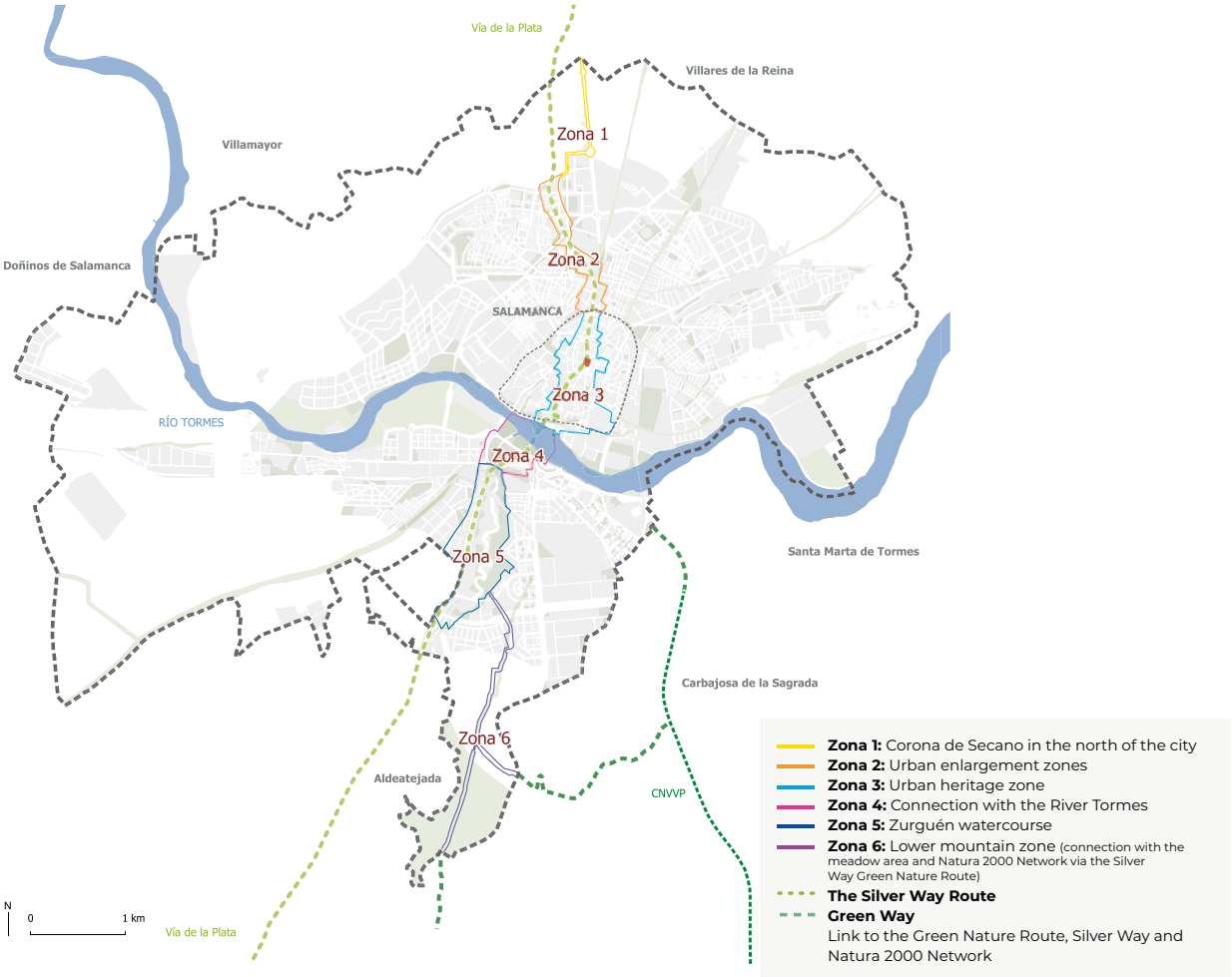
Rain garden and awareness-raising signage in Moreruela street.

Environmental volunteering activity within the framework of the project.

LIFE Vía de la Plata is a unique project that has implemented a green infrastructure strategy in a world heritage city, such as Salamanca (Spain).

A pilot project that has created a green corridor through the 6,9 km of Salamanca, which crosses from north to south the city, highlighting part of the central area, with outstanding universal value declared by UNESCO. The route has been divided into 6 pilot zones along the cattle route **"Vía de la Plata"** and the Cordel de Miranda (currently the Camino de Santiago).

42 actions have been developed in line with the objectives and actions contemplated in the **Green Infrastructure and Biodiversity Protection Plan (PEPIVB 2020-35) of Salamanca**, through 39 natu-re-based solutions (NBS) to recover 43 ecosystem services present in the city. Ecosystem services are nature's contributions to people and serve both for climate regulation, provision of reneuvable resources and food, improvement of air quality and enhancement of cultural services.



Map with the areas of the LIFE Vía de la Plata project.

It integrates 6 key elements in a city: climate change adaptation, green infrastructure, heritage city, ecosystem services, machine learning and citizen participation.

In addition, innovative technology has been used with green infrastructure control and monitoring stations, based on sensors, internet of things (IoT), cloud computing (big data) and artificial intelligence.

The project **LIFE Vía de la Plata** has achieved the following objectives:

1. It has identified the specific problems of a World Heritage City in order to provide solutions tailored to its particularities.
2. It has designed an **action plan and a roadmap for adaptation to climate change** for the city based on the Urban Adaptation Support Tool (UAST), promoted by the European Commission and the Covenant of Mayors on Climate and Energy.
3. **It has laid the technical and methodological foundations** to build the urban green infrastructure taking advantage of the route of the cattle trails that cross the iberian peninsula from north to south as they pass through Salamanca, in order to connect the green areas of the city with the outside world through a network of nodes and connectors.

Nature, heritage and citizens by the river Tormes.

4. It has initiated **the monitoring of the state of ecosystem services and climate change** in the city with innovative 'machine learning' processing techniques.
5. **It has made the entire citizenry** the protagonist of the process through participation, training and dissemination, with more than 1,620 activities to make citizens more aware, more active and better prepared to build a city model adapted to the effects of climate change.
6. **14 municipal departments** of Salamanca City Council have been directly involved in the construction of this green infrastructure and in the development/implementation of the project.

> "INNOVATION TECHNOLOGY FOR DATA COLLECTION AND MONITORING"

Training seminar for municipal technicians.

World heritage city. Objectives and problems starting point.

> "ADDRESSES THE NEED TO TACKLE THE ENVIRONMENTAL CASUISTRY OF WORLD HERITAGE CITIES"

The world heritage cities

The city of **SALAMANCA was included in the UNESCO World Heritage List** on 9 november 1988, by virtue of outstanding universal values identified under criteria I, II and IV of the guidelines of this international body that needs to be protected and bequeathed to future generations.

The main problems in Salamanca from the environmental point of view, as **heritage city of humanity are:**

- **The heat island effect and the impact on its health in relation with the ageing population and its vulnerability,** warned by the project **LIFE Vía de la Plata.**
- **The absence of forest protection areas** against soil erosion, protection of water resources, which favours evapotranspiration and carbon sequestration.

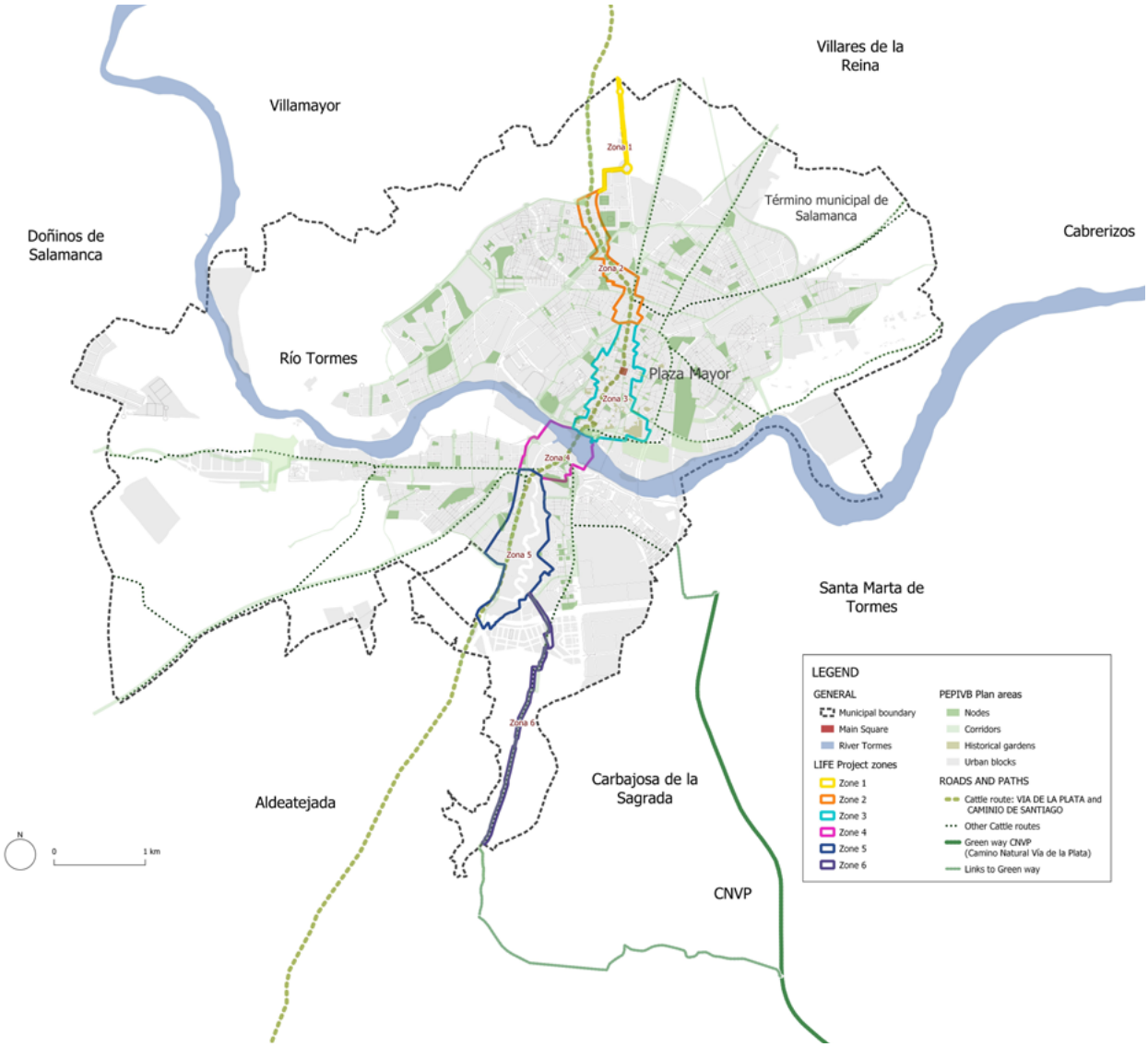
Interpretive walks in the heritage area, Colón square.

Connectivity planting in the botanical archaeological park.

- **Reduction of biodiversity and disconnection with natural ecosystems** periurban and external ecosystems produced by linear infrastructures (roads A-62, SA-20).
- New approaches are required **in the field of integrated conservation of cultural heritage assets** and sustainable development from a cultural and environmental point of view.
- **Positive and negative effects of mass tourism** and the effects of climate change.
- **Loss of residential and university function and weight in favour of tertiary services and habitability of public spaces.**
- **Affeccion of the effects of climate change to monuments.**
- **Balance in the uses of public spaces** and the incorporation of green infrastructure.

Salamanca's green infrastructure

Salamanca is the first World Heritage City with a **Special Plan for the Protection of Green Infrastructure and Biodiversity (PEPIVB 2020-35)** that establishes the guidelines for the development of the municipality and shows the commitment of Salamanca City Council to respond to the need for a change of model in the design of historic cities. Urban and peri-urban environments must adapt to the challenges of climate change, favour the quality of life and health of citizens, integrate nature, favour biodiversity and generate sustainable economic opportunities with the objectives of this plan.



LIFE Via de la Plata and PEPIVB overlap.

Actions, difficulties and results

Green infrastructure and biodiversity

> "MORE THAN 100 GREEN INFRASTRUCTURE ACTIONS CARRIED OUT ON A HISTORIC ROUTE AND ON TWO CATTLE TRAILS"

What is it?

The project has implemented more than 100 **green infrastructure actions along six zones** on a historic route and two livestock trails to address the different situations in the urban and non-urbanised environment, including the historic core area which is part of the world heritage list. The **scrubland area has a connection with the NATURA 2000 network.**

The areas in which action has been taken are the following:

- Peri-urban area.
- Urban area, 19th century suburbs.
- Urban area, historic area.
- Bank of the river Tormes.
- Zurguén stream watercourse.
- Scrubland area, Cordel de Miranda and RED Natura 2000 by the Camino Natural Verde Vía de la Plata (Carbajosa de la Sagrada).

The green infrastructure proposals and **with 39 nature-based solutions** (SbN) aim to improve the adaptation and resilience of the city and its surroundings to the effects of climate change and specifically to heat waves, the heat island effect, behaviour in the face of floods and the new rainfall regime, improvement of biodiversity and overall improvement of people's health and quality of life in a suitable urban environment.

Plantations and wildlife refuges in natural scrubland.

How?

The main actions have been the **introduction or improvement of vegetation along the route with species adapted to climate change,** which provide a greater number of ecosystem services of provision (food), regulation (temperature control) or culture (landscape), with a lower consumption of water resources. Other complementary actions have been fauna actions to improve biodiversity.

Difficulties

The main difficulties in carrying out the above actions have two distinct areas. The first, in the **fluvial environment, stems from the difficulty in intervening with vegetation actions in watercourses due to the criteria and deadlines of the administration** with powers in this area (Duero Hydrographic Confederation).

Detail of plantations in Zurguén.

On the other hand, **in the traditional urban area** questions have arisen in the debate on the role of vegetation in the protected environment, **the difficulty of intervening in the soils of a historic city both because of the existence of protected remains and because of the urban facilities themselves**. With regard to denser areas, with motorised traffic or economic activities, the diversity of interests makes it difficult to find compromises for the introduction of new needs.

> "29,603 NEW PLANT ELEMENTS PLANTED FOR THE ENHANCEMENT OF BIODIVERSITY AND ECOSYSTEM SERVICES"

Actions to restore the cultural value and demarcation of the route of the Cordel de Miranda cattle track.

RESULTS for the improvement of connectivity:

- Demarcation and protection of the Cordel de Miranda cattle track.
- Demarcation with **19 boundary markers of the cattle track**, Cordel de Miranda.
- Planting of **29,603 plant species** through the use of autochthonous species selected according to location, to improve biodiversity and ecosystem services, creation of living tree surrounds, creation of continuous flowerbeds to replace impermeable paving, line tree planting in linear infrastructures.

- **Improvement of soil permeability in parks** located in riverside areas within the scope of the project, on compacted land to improve vegetation.
- Planting of **one single tree** in Poeta Iglesias square.
- **Landscaping of one pergola** in the vicinity of Santiago church and one green facade in Niños del Coro.
- **5.800.89 m² of improvement of natural meadows** and elimination of meadows with high water consumption.
- **Symbolic actions with plant elements** in heritage environments in the Automotive History museum and recreational plant wall in the San Polo hotel.
- **Aeration and urban drainage ditches** in the perimeter of the church of Santiago (BIC) and Patio Chico area next to the old cathedral (BIC).
- **One zebra crossing and three draining car parks in San Pablo street.**
- **2.107.48 m² of treatment of spaces** which have **improved the permeability** and the natural water cycle by using different techniques such as sustainable drainage systems (SUD), rain gardens and permeable paving.
- **One artificial shallow artificial pond** in the Biodiversity Island in Hermanas Fidalgo Morales street.
- Use of **structured soils and draining pavements** for the development of vegetation under pavements (Pº Doctor Torres Villarroel).
- Naturalisation of space and an existing site transforming it into a new concept of space through the **formation of a biodiversity island** with a surface area of 7.716.72 m2 (Hermanas Fidalgo Morales street).
- **One biodiversity tower** in the urban orchard market.

Installation of bird nesting boxes in Miguel Delibes Park.

- Installation of **planters and green screens on balconies and terraces** as in the listed building of the EPE Patronato Municipal de Vivienda y Urbanismo.
- **Three naturalised benches** to promote biodiversity in Puerta de Zamora.
- Introduction of **382 nesting boxes, hotels for insects, butterfly oases and wildlife refuges.**
- Placement of **one nesting box for falcons.**
- **Eight butterfly oasis, 12 insect hotels.**
- Construction of **60 metres of dry stone wall** for auxiliary fauna refuge or living stone for reptile and amphibian refuge and **30 bird shelters**.
- Installation of **14 accessible furniture elements** for people with reduced mobility.

Innovative technology: internet of things (IoT) and monitoring stations for ecosystem services and climate change (MES)

Why?

The demonstrative and innovative nature of the project **LIFE Vía de la Plata** and the presence of themes **such as artificial intelligence and climate change facilitated the search for specific solutions** to be combined in the context of a world heritage city. **The aim is to achieve adaptation to climate change.**

How?

With internet of things (IoT) and with the implementation **of two prototype monitoring stations for ecosystem services and climate change. The project aims to use new technologies** (MES) in eleven locations.

Measurements will be taken to monitor:

> "ARTIFICIAL INTELLIGENCE AND CLIMATE CHANGE SEEK SPECIFIC SOLUTIONS WITHIN THE SCOPE OF A WORLD HERITAGE CITY"

Detail of a MES station.

- The evaluation of ecosystem services in an urban and peri-urban context.
- The impact of climate change and urban typology on environmental parameters (air and climate) in the urban context.

The data captured through sensors are: air temperature, relative humidity and pressure, wind speed, maximum and average wind speed, precipitation, soil variables such as humidity, electrical conductivity and temperature, particulate matter (PM1, PM2.5, PM4, PM10) and gases (CO_2, NO_2, O_3, CO, NO).

In addition, **open public data from the INSPIRE directive** have been taken in combination with **data on the physical environment** (vegetation indices, imperviousness, surface temperature) from satellites of the **Earth Observation Programme of the European Union, Copernicus** from the Landsat satellite of the United States Geological Survey (USGS).

> “INSTALLATION OF 11 ECOSYSTEM SERVICES AND CLIMATE CHANGE MONITORING STATIONS”

MES station located in the botanical archaeological park.

Difficulties

During the different phases of the project, the greatest difficulties for the execution of the technological proposals have been the following:

- Difficulty in the location of the stations due to their status as heritage city.
- Lack of qualified technicians to facilitate the understanding of the problems to be solved and the cross-cutting nature of the application of technological solutions in the different areas of climate change and ecosystem services.
- Lack of time during the implementation period to generate predictive models for the data collected.

Results

- **11 monitoring stations for ecosystem services and climate change** (MES).
- **Big data through the implementation of two platforms** that allow the acquisition of information from different sources, including the MES stations, for the formation of the project's own indicators, as well as allowing their processing and visualisation. These platforms also allow the relationship with other platforms (WEKEO Copernicus) to obtain satellite data (earth observation).
- Project GIS data uploaded to the **City Council's** 'Smart City' platform.

- Four useful models:

    1. Green infrastructure management tool for urban green infrastructure: **(GIMAT).**
    2. Multifunctionality tool for the actions of **renaturalisation (MAREN)** to be able to assess the effectiveness of nature-based solutions (SbN).
    3. Machine learning model for the characterisation of **local climate zones** in the world heritage city of Salamanca.
    4. Model for the **multi-criteria prioritisation of urban climate change adaptation measures** in a world heritage city of Salamanca.

Rain garden, plantings and naturalised benches at Puerta de Zamora.

Plantations to improve connectivity in Vaguada de la Palma.

> "FOUR MODELS USEFUL IN ORDER TO MAKE DECISIONS"

Urban tree management tool

The urban green infrastructure management tool **(GIMAT)** of the city of Salamanca–contributes to **decision making in new urban tree plantations** within the project **LIFE Vía de la Plata**. GIMAT indicates which tree species is the most valuable for carbon storage and sequestration, retention of atmospheric pollutants and reduction of surface runoff, all of which are identified in the project. This facilitates the decision of which species to plant according to the needs of the area.

Tool for municipal compensation of ecosystem services

At **LIFE Vía de la Plata** the tool **multifunctionality for actions of renaturation (MAREN)** has been developed to assess the effectiveness of nature-based solutions (NBS) to address the environmental challenges facing Salamanca. MAREN provides a framework for understanding the potential of such actions to deliver multiple benefits to people. **Specifically, it allows the calculation of the potential multi-functionality of each group of nature-based solutions (NBS)** developed in the project, taking into account a series of criteria that refer to the capacity of these solutions to generate green infrastructure.

Model for the multi-criteria prioritisation of urban climate change adaptation measures in a world heritage city

Prioritises the measures given in a catalogue of multi-criteria analysis carried out and described in the document called 'proposal for decision making'. In addition, the tool has been described in the document, 'prioritisation tool for adaptation measures'. This tool is based on a multi-criteria analysis that provides a systemic and structured approach to evaluate options with respect to different criteria.

Machine learning model for the characterisation of local climate zones in the world heritage city of Salamanca

A useful model for the assessment of the heat island effect and local climate zones. **Machine Learning model for the characterisation of local climate zones in the world heritage city of Salamanca** (LCZ) has been developed and is easily r**eplicable at European Union (EU) level.**

The proposal envisages the use of open public data from the **INSPIRE directive** in combination with data on the physical environment (vegetation indices, imperviousness, surface temperature) from **satellites of the EU Copernicus programme and Landsat of the USGS**, to establish a zoning of the city according to its foreseeable behaviour with respect to the heat island phenomenon. Increased by the effects of climate change, it is the way in which cities react to temperatures and which in turn produce negative effects on the health of people and ecosystems.

Data based processes have been used that allow combining data from different origins and formats and unsupervised 'machine learning' algorithms (a technique within the so-called artificial intelligence).

> "CREATION OF AN INNOVATIVE MACHINE LEARNING MODEL FOR URBAN ANALYSIS"

The result is a replicable utility model that allows the creation of **local zonification with an accuracy of 30 metres in any city in the European Union.**

The interest is not only focused in the zoning itself, but also in the process of combining satellite data with INSPIRE data. The project has carried out examples to assess replicability in the cities of Valencia and Vitoria.

Urban drainage systems and planting in Niños del Coro in heritage area.

> DEVELOPMENT OF TOOLS TO ASSESS THE EFFECTIVENESS OF NATURE-BASED SOLUTIONS

Ecosystem services

The project **LIFE Vía de la Plata** contemplates different actions that contribute to the construction in the city of Salamanca of a multifunctional blue-green infrastructure network. This multifunctionality is associated with numerous benefits for the health and well-being of the people living in Salamanca and is obtained thanks to the capacity of the ecosystems that make up this network to provide multiple services.

What are they?

Ecosystem services are the **benefits that people obtain from nature (ecosystems), including those that people perceive and those that they do not perceive.** They are the contributions of ecosystem structure and function to people's wellbeing, as they have consequences for society's prosperity, not only in its economy, but also in health, social relations, freedoms and security.

There are **three groups of ecosystem services: provisioning services (PS), regulating services (RS) and cultural services (CS).**

How?

In the **LIFE Vía de la Plata**, **43 ecosystem services (8 PS + 23 RS + 12 CS) have been identified** and 82 indicators have been defined that will be used to monitor the evolution of these services in the city of Salamanca. Each service has one or several indicators associated with it, most of which have been defined following the methodology of the group of experts known as MAES (*Mapping and Assessment of Ecosystem and their Services*).

In order to estimate those generated by the renaturalisation actions (nature-based solutions) of the project, and to be able to assess whether the blue-green infrastructure of Salamanca generates the expected benefits, two useful models have been created.

Results

- A document with a list of the 43 types of ecosystem services focused on the project and their indicators.
- A manual of recommendations for the implementation of actions.
- A document that includes a correlation of ecosystem services and climate change indicators.

Drainage ditch and naturalisation of meadows around Iglesia Santiago (BIC) in heritage area.

Climate change adaptation

According to the results of the analysis of risks and vulnerabilities carried out in the project, **in Salamanca the increase in temperature and heat waves are the threats** that affect the greatest number of economic sectors, followed by floods and droughts. In this context, adaptation to climate change in the city is necessary in order to reduce these threats and maintain or improve economic, social and environmental sustainability. Several sectors in Salamanca are threatened by this major climate change issues, including an ageing population, tourism and heritage.

The methodological framework of the Urban Adaptation Support Tool (UAST) is used to plan the city's adaptation. It consists of six steps: first, site preparation; second, assessment of risks and vulnerabilities; third, identification of adaptation options; fourth, assessment and selection of options; fifth, implementation; and sixth, monitoring and evaluation.

Training, participation and capacity building

One of the main **indicators of success of a project is social involvement in the project.** Involving citizens in the project, as well as disseminating the project, will improve their sense of belonging to the city and make them more aware of the valuable ecosystem services that the city offers through the improvement of urban green infrastructure.

The project **LIFE Vía de la Plata has generated and developed 165 courses, training workshops, seminars** addressed to school children, associations or entities, general public and technical staff, with more than 10.089 participants, **one international congress** with 556 participants (online and face-to-face format), **six municipal councils, five competitions** with more than 918 participants, **12 materials or videos with english subtitles, 110 walks or routes** with more than 2.307 participants and **18 informative signs for awareness and education** distribuited throughout the city.

Plantations with autochthonous species in Parque de Elio Antonio de Nebrija next to the Roman bridge.

Environmental education workshop for schoolchildren.

> "165 TRAINING ACTIONS CARRIED OUT TO EMPOWER AND INVOLVE CITIZENS"

Municipal councils

The municipal councils of Salamanca constitute the collegiate bodies of participation of the city council, with a consultative, informative, advisory and proposal character, in different matters of the life of the city. **The project has been presented in six municipal councils.** The number of direct attendees was around 130, while the number of indirect attendees to whom it was transmitted was 10.764.

Online access and training activities

The production of eight training activities translated into english, lasting 20 minutes, with more than 7.000 views, has enabled the project's objective to be made known to a large number of recipients, creating tools that can be extrapolated to other heritage cities. The online training activities can be viewed freely on the project's YouTube channel. The topics covered include how to make your own green balcony, the benefits of native trees and green infrastructure in heritage cities.

Programme of walks and guided itineraries

The programme of walks 'go green' and guided itineraries carried out responded to the need to present the natural and cultural resources of the Vía de la Plata as it passes through the municipality of Salamanca, as well as being a crucial meeting point to raise awareness of the importance of natural spaces in a world heritage city and to make more visible the benefits they bring to our health.

> "CELEBRATION OF 110 INFORMATIVE WALKS TO HIGHLIGHT THE SYMBIOSIS OF NATURAL AND HISTORICAL HERITAGE IN SALAMANCA"

The nine planned routes made it possible to get to know almost all of the 6,9 km of the Vía de la Plata and connecting areas as it passes through the municipality of Salamanca and, in addition, the five green islets on which work has been carried out.

The programmes of guided walks and itineraries brought together the general public, neighbourhood associations, associations of people with disabilities, volunteers, vocational training centres and schoolchildren, with **a total of 110 walks and 2.307 participants.**

Results

- 110 routes with nine different itineraries.
- 2.307 people attended the guided walks and itineraries.
- Participation in 38 educational centres with 1.027 pupils.
- Four posters in digital and printed format.
- Five cultural and environmental information sheets on green islets in the city.

Environmental workshop for citizens.

> FIVE PUBLIC COMPETITIONS OF PHOTOGRAPHY, BALCONIES AND IDEAS WITH 918 PARTICIPANTS

Competitions

Five public competitions have been held with nearly 918 participants which allowed the public to participate and highlight the benefits of green infrastructure to make Salamanca an even healthier city with a higher quality of life, as well as giving greater visibility to the project.

Results

- Three photography competitions between 2020 and 2023.
- One competition for green balconies for private and public spaces.
- One idea competition to include green infrastructure actions in the urban-heritage area of Salamanca.

Proposal and participation workshops with citizens' organisations.

Interpretive walk with 3rd year children of the Maristas Champagnat school.

Courses, seminars and awareness-raising workshops

The training actions provided through courses, seminars and awareness-raising workshops developed by the **LIFE Vía de la Plata project have led to a wide dissemination of different concepts related to the naturalisation of cities, green corridors, adaptation and mitigation of climate change in a world heritage city** such as Salamanca. Its main objective has been to raise awareness of the benefits provided by green corridors and urban natural spaces, as well as the services that ecosystems provide to people.

The subjects covered were mainly of a practical nature, with varied contents of a markedly environmental nature and with a cultural focus within urban spaces. Workshops were held on ornithology, entomology, botany, as well as the construction of nesting boxes and shelters for small mammal, and the construction of hotels for insects. This training has been the basis for students with social problems to build 340 structures for the fauna that have been placed in the city, so it provides a social component and promotes the employment of this group.

> HOLDING OF AN INTERNATIONAL CONFERENCE ON CLIMATE CHANGE ADAPTATION STRATEGIES IN WORLD HERITAGE CITIES

Results

A total of 165 courses, seminars and awareness-raising workshops has been held. **This training has been the basis for students with social problems to build 340 structures for the fauna that have been placed in the city, providing a social component and promoting the labour insertion of this group.** Open to all citizens, university and vocational training students, schoolchildren, teachers, civil servants and groups of different kinds, with **participation of 10.089 people in total,** of which 1.380 are schoolchildren and vocational training students from 24 educational centres as well as 226 university students from four spanish universities.

LIFE Vía de la Plata congress

On 8th, 9th and 10th november 2023, **Salamanca hosted an international congress** in which 20 experts of recognised national and international prestige were able to discuss and present successful examples of how cities and, in particular, those listed as world heritage sites, can develop strategies to face the challenges of climate change.

The congress was organised around six different thematic blocks (1. LIFE Vía de la Plata, EC LIFE programme, green infrastructure and landscape; 2. Adaptation of heritage cities to climate change; 3. Artificial intelligence applied to the phenomena of climate change; 4. Urban ecology and biodiversity, 5. Environmental communication, and 6. Services for the environment and sustainable development. Its most important points were the intervention of representatives of spanish city councils which, like Salamanca, are developing pioneering strategies and actions for urban renaturalisation, such as Barcelona, Valencia, Segovia or Avila.

All the documentation and videos of the congress are posted on the Youtube channel and its website.

Participants of the LIFE Vía de la Plata congress.

Results

- One triptych of the congress (dissemination material);
- 556 people attended in person and online to the presentations;
- Four workshops for citizens;
- Participation of five cities and 10 public and private entities;
- Participation with three networking projects;
- 20 experts who placed Salamanca in a prominent position in the environmental debate.

Networking

From the project **LIFE Vía de la Plata** multiple **networking actions have been carried out** which has made it possible to incorporate innovative elements as a result of the collaborations established and which will guarantee long-term collaborations with them.

Results

Relations have been established with 13 cities (11 spanish and two european) and with 17 european projects, highlighting the one carried out with LIFE ZEPA URBAN (LIFE15 NAT/ES/001016), with the transfer and placement of 25 lesser kestrel nests in heritage buildings within the LIFE Vía de la Plata. As well as with the LIFE ASTI project (LIFE17 CCA/GR/000108) to validate the layers for the machine learning model on local climate zones and the LIFE URBAN KLIMA 2025 project (LIFE 18 IPC 000001) for joint actions on climate change and participation in the project congress.

The contacts made have been of great interest for the future of the city by establishing alliances between the different cities and projects.

Winners of the competition for common spaces, balconies and terraces.

Dissemination and communication

The communication strategy of **LIFE Vía de la Plata has focused on informing the citizens of Salamanca of the advantages that its actions will bring to their city** and to their daily lives, seeking their involvement. To this end, the project has been translated into concepts such as health, green city, more space for people, adoption of measures to tackle climate change, vindication of natural heritage and identity, and the fact that the solutions developed can serve as a model for other european cities.

These lines of communication have been worked on through a constant dissemination activity in which these strategies have been translated into specific content disseminated through **different channels: project website social networks, videos, press releases, communication media, events and articles.** This dynamic has had a progressive impact on the citizens of Salamanca, promoting a greater knowledge of the natural resources of Salamanca, a greater awareness of the importance of naturalising the city and an awareness of the citizen's role in the development of urban green infrastructure.

In addition:

- Creation of a permanent **Centre for dissemination and exhibition of the project** at the headquarters of the EPE Patronato Municipal de Vivienda y Urbanismo of the Salamanca city council,
- Printing of 6.000 leaflets and distribution to the public,
- Creation of six roll ups,
- Creation **of two videos for the presentation and closing of the project,**
- **Edition of 6.000 calendars** and distribution to the public,
- Sending of 12 newsletters to a database of 1.663 users,
- Seven communications to CINEA.

> "COMMUNICATION FOCUSED ON TRANSLATING THE ADVANTAGES THAT THE PROJECT BRINGS TO THE CITY IN ITS DAY TO DAY"

- **Participation in the #LIFEis30 campaign** with two actions,
- **Conducting two surveys open to the public**, one at the start of the project with 49 participants and another at the end with 445 participants (total 494 participants),
- Design of a **infographic to socialise the project** and its benefits.

Participation in the European Commission's #LIFEis30 campaign.

Communication results

WEB SITE

+ 5.145 users

+ 20.209 visits

+ 62.142 interactions

+ 472 downloads documents

SOCIAL NETWORKS (FOLLOWERS)

FACEBOOK 235 FL
+ 453 posts

INSTAGRAM 498 FL
+ 348 posts

TWITTER 299 FL
+ 379 posts

LINKEDIN 104 FL
+ 379 posts

YOUTUBE 155 FL
+ 76 videos

NEWS GENERATED

133 news items (press releases) related to the project generated and uploaded to the website

PRESS CONFERENCES

25 press conferences held

MEDIA PRESENCE

2523 registered communicative evidences

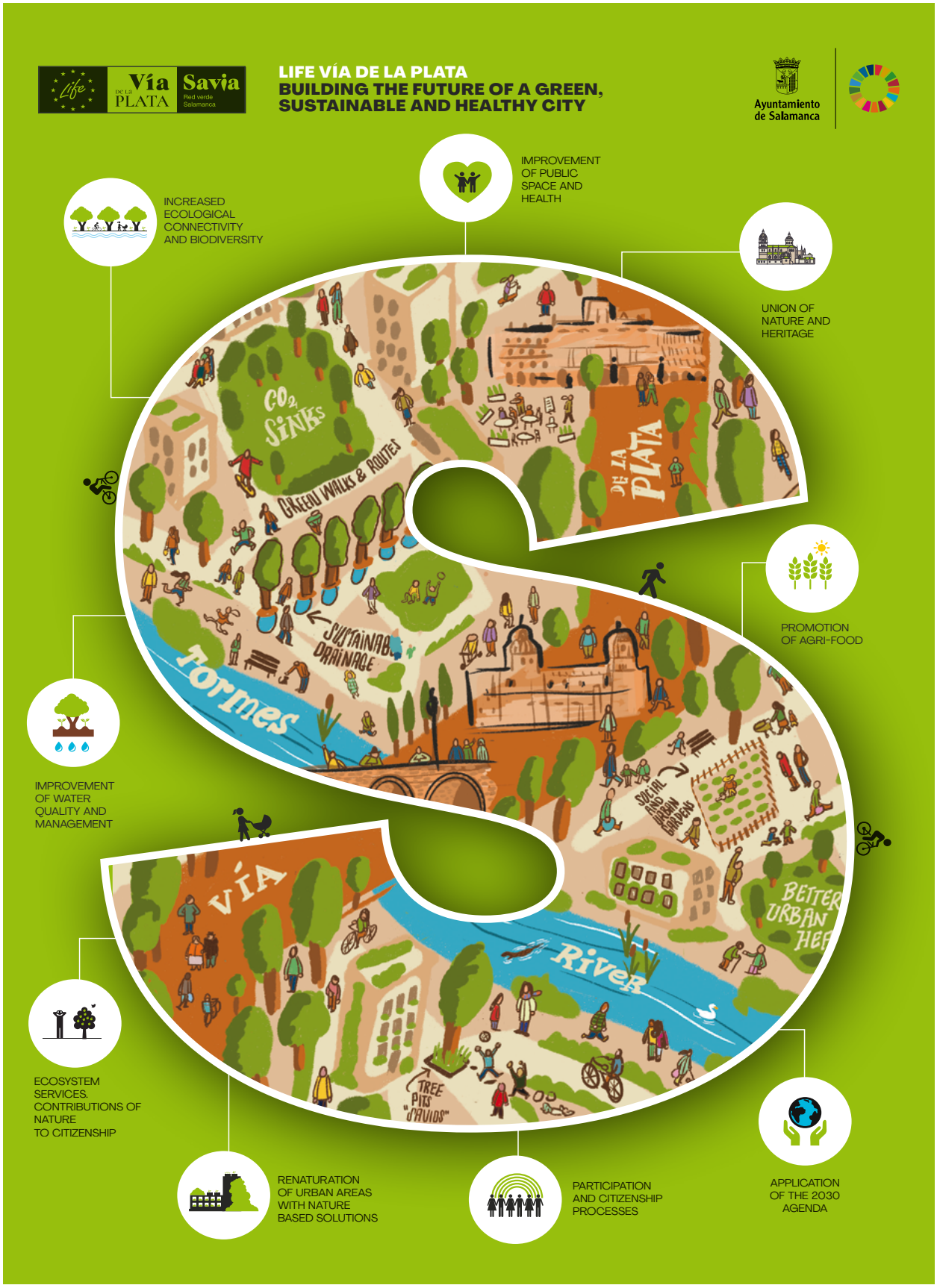
+ 561 appearances in general press

+ 6 technical publications

+ RRSS, blogs and websites

Data until 31 december 2023

Prize-giving ceremony of the LIFE Vía de la Plata photography competition.


LIFE VÍA DE LA PLATA
BUILDING THE FUTURE OF A GREEN, SUSTAINABLE AND HEALTHY CITY
Ayuntamiento de Salamanca
IMPROVEMENT OF PUBLIC SPACE AND HEALTH
INCREASED ECOLOGICAL CONNECTIVITY AND BIODIVERSITY
UNION OF NATURE AND HERITAGE
PROMOTION OF AGRI-FOOD
IMPROVEMENT OF WATER QUALITY AND MANAGEMENT
ECOSYSTEM SERVICES. CONTRIBUTIONS OF NATURE TO CITIZENSHIP
RENATURATION OF URBAN AREAS WITH NATURE BASED SOLUTIONS
PARTICIPATION AND CITIZENSHIP PROCESSES
APPLICATION OF THE 2030 AGENDA
CO2 SINKS
GREEN WALKS & ROUTES
SUSTAINABLE DRAINAGE
TORMES
VÍA
DE LA PLATA
SOCIAL AND URBAN GARDENS
BETTER URBAN HEA
RIVER
TREE PITS "DAVIDS"

Sustainability effects and repercussions in the long term

After LIFE plans

Salamanca

Salamanca already has a track record of actions to improve the built environment based on green infrastructure, which in turn complements its municipal strategy for adaptation to climate change. The **LIFE Vía de la Plata** project itself is part of the **SAVIA green network strategy**, and has its origin in the special **plan for the protection of green infrastructure and biodiversity (PEPIVB)**, which also guarantees the continuity of the actions in the coming years.

> "INFLUENCE OF THE PROJECT ON THE STRATEGIC PLANNING OF THE CITY AND ITS ADAPTATION TO THE SDGS"

During its implementation, it has had an intense influence on other planning for the future of the city, such as the local action plan of the spanish urban agenda for adaptation to the SDGs.

Moreover, the pioneering nature of the actions, based on the need to transform the city, has generated a debate that has resulted in the current improvement of some traditional ways of doing things in municipal departments.

The technological proposals put forward in the project **LIFE Vía de la Plata**, together with the other proposals underway such as the **'Smart City'** municipal, or the commitment to artificial intelligence are also a fact to which it has contributed directly and indirectly.

Information panel on the cool island created in Plaza de Colón.

Participation in university master's degrees.

The projects and debates that have been generated, together with the training and dissemination work at all levels through social agents of great prestige in the city, and the leading role of the project **LIFE Vía de la Plata** and the actions of the city of Salamanca in national forums, are also a fact of great importance for the achievement and continuity of the objectives pursued and which can be demonstrated objectively.

All of the above issues mean that the role of the city and the project **LIFE Vía de la Plata** has a natural dissemination and replication to the forums in which the city exerts its influence outside the local sphere.

The capacity for the city of Salamanca to become an example for the transformation of the municipalities in its immediate surroundings (municipal, provincial and regional) nowadays.

Finally, the project **LIFE Vía de la Plata** has underlined the will of the heritage city to support actions in environmental matters and adaptation to climate change in development with its management plan for the old city of Salamanca and its role in the group of world heritage cities of Spain in its national and international reputation.

It is not a minor issue for the sustainability of results that has allowed the consolidation of an internal municipal team with the sensitivity and capacity to carry out the future transformation of the city within the objectives pursued in the **LIFE Vía de la Plata**.

Regardless of the direct results themselves, as we must not forget that it is a pilot project, a highly desirable product to facilitate the sustainability and extension of the project to the city and other areas.

Rain garden and plantations in Zamora street.

> "GREAT POTENTIAL FOR REPLICABILITY OF ACTIONS CARRIED OUT IN CITIES WITH SIMILAR CHARACTERISTICS"

Planting trees in schoolyards to improve connectivity.

Beyond of our borders

The proposals of the LIFE Vía de la Plata project that combine heritage city, adaptation against climate change, green infrastructure, ecosystem services and new technologies, are pioneering actions that have a high potential for replication in Europe through forums such as the groups of world heritage cities or historic cities (FEMP).

The project **LIFE Vía de la Plata**, starting from the local and national replication scales, has had in its trajectory a focus on the fit of the project on a european scale. The strategy followed, given its limited scope in the context of the transformation of the city, has focused on SBN pilot actions or representative utility models that serve as leverage for other territories similar to those of a city such as Salamanca.

To achieve this, **has established networking contacts with other LIFE and H2020 projects outside Spain** such as LIFE METRO ADAPT (LIFE18 CCA/IT/IT/000080), LIFE SUPERHERO (LIFE19 CCA/IT/001194 and the ReSET project (H2020 ID: 101017857) which shared themes in search of joint experiences.

In this regard, it is worth highlighting the case with LIFE ASTI LIFE17 CCA/GR/000108 giving advice to processes that have used a standardised database at european and international level (INSPIRE, COPERNICUS, LANDSAT), moving forward with replication actions with another twinned European city such as Bruges (Belgium).

International congresses on the subject have been attended, and **six technical publications have been produced.**

Results

- Creation of a **"best solutions" guide** of the actions carried out in a world heritage city,
- Creation of **four guides for the improvement of biodiversity:** "torre de biodiversidad", "oasis de mariposas-LIFE Vía Plata", together with the association ZERYNTHIA, creation of a "isla de biodiversidad" and the citizen's guide for the care of "alcorques savios",
- **18 informative and awareness-raising signage** along the project route and throughout the city,
- **One interactive map of actions on its website,**
- **One guide of experiences, best practices and replicable documents.**

> "BEST SOLUTIONS GUIDE TO ACTIONS IMPLEMENTED IN WORLD HERITAGE CITIES WITH HIGH POTENTIAL FOR REPLICATION IN OTHER CITIES"

Participation in the ECCA in Dublin.

LAYMAN'S REPORT

LIFE VÍA DE LA PLATA
LIFE19 CCA/EN/001188

Co-funded by the European Union

Coordinating beneficiary:

Associated beneficiaries:

Ayuntamiento de Salamanca

Universidad del País Vasco

Euskal Herriko Unibertsitatea